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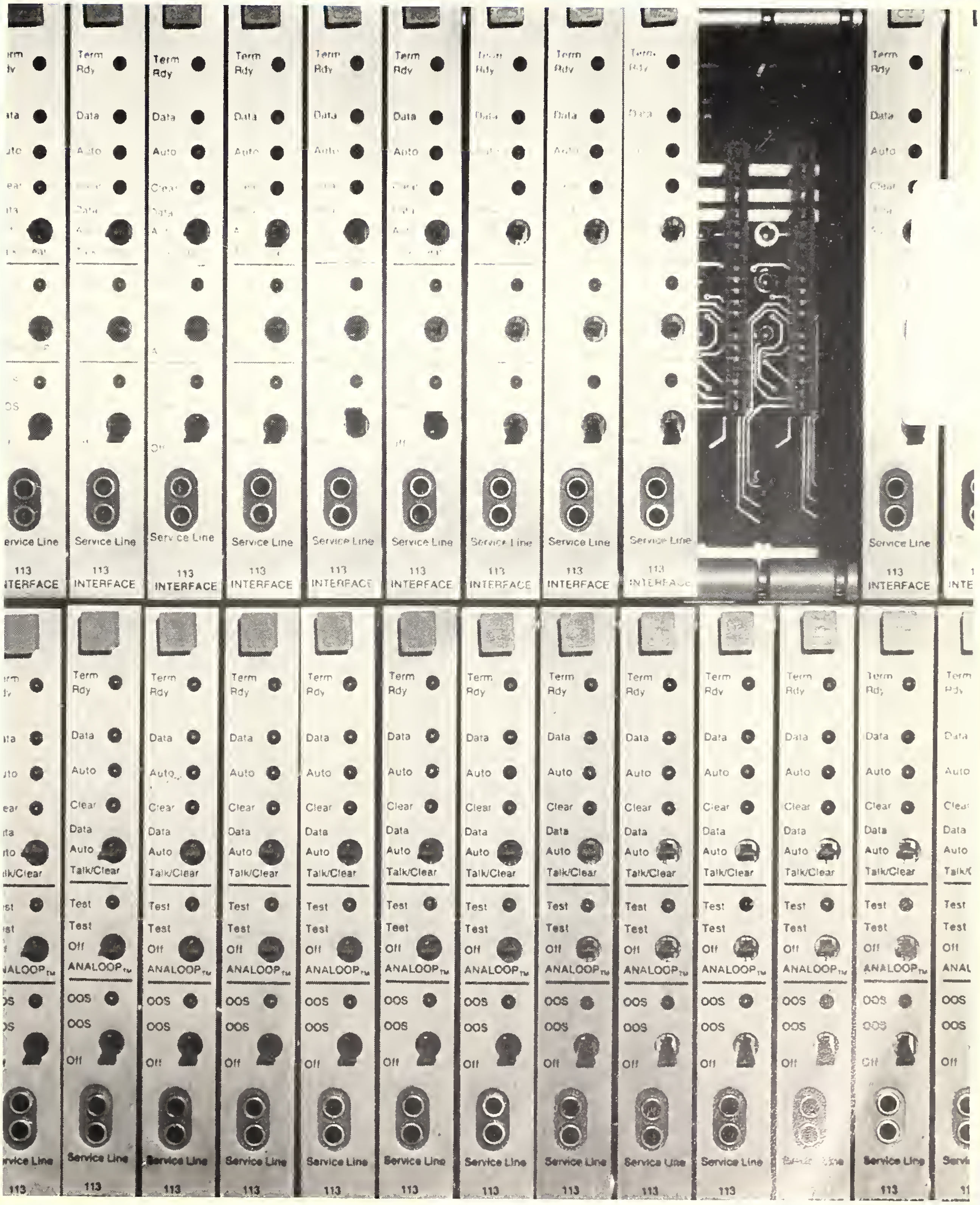

COMPUTERNEWS

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Cover

This month's cover photograph by Mark Tapia shows part of one of the Bell answering modems, the modems which link the telecommunication lines to the various IBM mainframes. This month's *COMPUTERNEWS* features UTCS's communications services. The computer communications services and resources currently provided by UTCS are described in the articles entitled *Computer Communications* and *Current UTCS Communication Services.* The article *The Gandalf PACX* describes the PACX front end switch, a communications feature which will be implemented sometime in the near future.

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COMPUTER COMMUNICATIONS

Readers of *COMPUTERNEWS* are now looking at a new column - *COMPUTER COMMUNICATIONS.* This column will keep users informed of the many aspects related to communicating with UTCS's computers. *COMPUTER COMMUNICATIONS* will be used to announce new services, changes to services, new equipment availability, problem areas (hopefully, not too many), and other items of information useful for effective computer communications. Although *COMPUTER COMMUNICATIONS* is intended to be regularly featured in *COMPUTERNEWS,* it is more likely to be event driven, precipitated by the event to be described. This article is no exception.

UTCS provides the university community with a variety of computing resources. Combined, the major UTCS systems - the 3033, 3031, S/370-165-II and DEC-10 - can execute instructions at the rate of 10 MIPS (million IBM/370-like instructions/second), have a random access memory of 17.2 megabytes, and are connected to 10,000 megabytes of online storage. In addition to all of this hardware, UTCS provides a comprehensive set of tried and tested software and expertise that can be utilized to harness this computer power. One of the problems which remains is how to effectively deliver this power to the UTCS user body.

UTCS users are aware of our commitment to provide distributed computing tailored to the user's need and economic circumstance. In previous *COMPUTERNEWS* issues, Dr. D. Cohen outlined our objectives. The development of UTCS's distributed computing workstation, VIVA is a major step in this direction. The present experimental implementation of VIVA allows the user to create, edit and submit programs to a host for execution, and then inspect and browse the output. As development continues, more local processing capability will be added, providing increasingly powerful resources in a personal computing system.

The complementary facility of distributed computing, a communications network, is currently in the planning stages. In time, a local computer network will interconnect our major systems with VIVAs, minis, micros and various types of user computers and terminals. This network will provide a fast, reliable and unified means of allowing interconnected users to pass and retrieve messages, files, mail, memos, documents, and to interact with each other and the systems. Although some of the more sophisticated communication facilities are not currently available, UTCS does provide many useful communications services. For example, the DEC-10 MAIL facility allows users to pass messages to other DEC-10 users. Many of our globetrotting users keep in touch with associates by logging on to the DEC-10 through DATAPAC, TELENET, and other publicly accessible computer networks.

In the next two articles, our communication services will be described in more detail. The first article will give brief summaries of the basic communication facilities one can currently use for computer access from remote locations. The second article will describe PACX, a front-end switch which is currently on order. PACX will be used to unify the connection of terminals such as Diablos, DECscopes, teletypes, and Volker-Craigs to our interactive services.

Walter Rosocha

CURRENT UTCS COMMUNICATION SERVICES

In general, remote users are connected to host computers through communications boxes called front-ends. Each of our IBM machines has a communications front-end, the IBM 3705. The 3705 is software controlled and handles many of the intricate details of connecting terminals to IBM hosts. Similarly, the DEC-10 has a DN87 for attaching terminals and a DN61 that handles the link to the 3033. Each of the DNs is in itself a minicomputer, a PDP-IV40.

The user can have the communications services delivered in any of four basic packages. These are categorized by the terminal type the user has connected to the communciation line:

1. Asynchronous, teletype, start/stop, S/S, or dumb terminals.
2. Intelligent terminals or 327x clusters.
3. HASP-RJE or batch station.
4. Computer - micro, mini, or maxi.

A short description of the characteristics of these follows, as well as some comments on the hardware and software needed to run them.

Asynchronous Terminals: These are the cheapest and most popular form of terminal providing interactive computing to the user. The purchase price ranges from $800 to $5000, depending on the quality and features. They are easily connected to computers via telephone and acoustically coupled modems or hardwired lines. They do not, in general, require complicated hardware or software set-up, they can be easily relocated in home or office, and they can communicate using speeds from 110 to 9600 bits per second (bps) using relatively inexpensive modems. UTCS provides 127 dial-in ports as well as some 64 hardwired ports. The disadvantage of these terminals is the asynchronous line protocol which is used for character transmission. This protocol is inefficient (each character requires a start bit and a stop bit for framing) and has poor error control (parity check and character echo back, at most, are implemented). Also, each terminal requires a dedicated port during operation. UTCS front-ends can accommodate a wide class of asynch terminals - TTY33/35, 2741, 3767, Diablo, Volker-Craig, etc. Should you be in the market to lease or purchase one of these, your Computing Services Representative (CSR) can provide advice or recommendations.

Intelligent Terminals: This class of terminals is distinguished from those described in the previous paragraph in that they have additional capabilities. For example, some have additional memory buffers to accommodate file transfer and local printer attachment, graphics capability, offline storage in the form of cassette or diskette, and possibly some program editing aids. Some communicate with host computers using the asynchronous transmission techniques described above. Others communicate using synchronous techniques such as IBM's Binary Synchronous Communications protocol (Bisync).

Bisync and other synchronous protocols (such as SDLC, HDLC, and DDCMP) have two advantages over asynchronous techniques - efficiency and error-free transmission. Transmission is more efficient because the start and stop bits used to frame characters during ansynchronous transmission are not needed. Transmission is error-free (less than 1 bit-error in 10**13 bits transmitted as compared to 1 in 10**5 for asynchronous transmission) because characters are transmitted in blocks terminated with block check characters. If an error is detected by the receiver, the block

continued...

CURRENT UTCS SERVICES continued

is retransmitted. As may be expected, synchronous modems and computer interfaces are considerably more expensive than their asynchronous counterparts.

One class of intelligent terminal manufactured by many vendors is known as the 3270 cluster. The terminals are connected to IBM hosts through a common controller and communications link. This mode of interaction makes efficient use of the communications link and, through the intelligence in the terminal and controller, provides many convenient features to the programmer. Among these are high speed access to the host computer, full screen editing, and programmer definable function keys. UTCS supports some 130 terminals and 20 printers connected to 26 computer ports operating at speeds of 2400 to 7200 bps. As these terminals use the synchronous Bisync protocol, transmission is error free. The disadvantages of these terminals are that they are relatively expensive ($150 - $200/month, leased), use synchronous modems, and can access only IBM machines. In addition, these terminals require hardware and software set-up to be identified to the computer access methods and cannot be freely relocated between clusters.

HASP-RJE: RJE stations consist of a minicomputer driving some combination of card readers, printers, and punches. This is the most widely used form of access to UTCS's computers, there being 27 locations served by 23 front-end ports. Although this is the most efficient and cheapest access facility for high volume demands, this facility is punch card based. Data transmission is error-free because the Bisync transmission protocol is used. Due to the batch nature of HASP access, users must endure a relatively long job turnaround time. This can be very annoying during program development when quick interaction during the editing and checkout phases is highly desirable. The information transfer rate for the stations now connected ranges from 2000 to 9600 bits per second.

Any user wishing to install a HASP remote at his location should contact his Computing Services Representative. The user will need a processor with the appropriate software to emulate one of the many HASP protocols - e.g. S/360 HASP workstations, 2770, 2780, 3780, etc. Depending on the expected traffic, a dedicated or shared front-end port would be required. The CSR would be able to advise on the suitability of the user's current hardware or recommend the lease or purchase of equipment from some vendor and arrange to have the system connected.

Computer: This is the most powerful form of terminal because its software can be made to emulate any terminal logic. For example, the DEC-10 DN61 emulates a 2780 and is used to transmit jobs and files to and from the 3033 and to route output to any UTCS printer location. Note that the card I/O devices are not needed for transferring files or submitting jobs using a HASP protocol. UTCS has tested facilities on PDP-11s and LSI-11s. Some vendors also provide HASP support for micros - TRS-80 and S-100 based microcomputers. These capabilities have not yet been tested by UTCS but will be at some future date.

Eugene Siciunas

THE GANDALF PACX

PACX - A Front-End Switch

This article describes UTCS's motivation for acquiring a Gandalf PACX. First, who is Gandalf? Gandalf is a mythological wizard living in Tolkien's fabulous tales. Gandalf is also one of several innovative, Canadian communications companies with growing, international reputations. Gandalf was the first to develop and sell a microprocessor based front-end switch. PACX is the acronym derived from *Private Automatic Computer eXchange*. Operationally, PACX is analogous to a telephone exchange. PACX allows a caller (user with a terminal) to select a callee (computer port), establishes a communcation link between them and then becomes transparent. When the caller-callee dialogue is completed and one end disconnects, PACX will free-up the computer port for re-use.

PACX, when fully implemented, will unify computer access for all asynchronous terminals. Initially, only terminals controlled by UTCS will be connected, and only users logging on from local UTCS terminal areas at EUT, Arts and Science, and New Physics will be affected. The cut-over date for these terminals is planned for some time in April, depending on Gandalf's delivery schedule. The remaining terminals will be connected in the second half of August.

To fully appreciate the basic benefits of a front-end switch, one must be aware of the problems that it solves. Take the case of the Engineering Annex. Currently, there are four groups of terminals,the 165, 3033, DEC-10 and Bell groups. These are classified according to how they are connected to the systems. The 165, 3033 and DEC-10 groups have dedicated access to their respective computers. The Bell group has access to all three systems using the Bell dial telephone network. The advantages of using terminals with dedicated access are a higher quality service because relatively inexpensive, high speed line drivers can be used, and a lower error rate because the terminals' lines are short and pass through a controlled environment. The disadvantage is that only one service can be selected by them. This can be overcome using brute force; each terminal in a group can be provided with 2 additional lines and 2 additional dedicated ports. This is expensive in terms of cabling and port costs.

The Bell group can connect to all systems through the Bell telephone network using acoustically coupled modems. The advantage is unrestricted selection. The disadvantages are cost, slow speed, high error rates, occasional line drops and the need to remember three phone numbers.

By attaching these four terminal groups to a front-end switch that connects to all three computers, all of the advantages are retained while many disadvantages vanish. The dedicated groups can now connect to **any** service with their higher quality lines. With the Bell group there is now only one phone number to remember, however high error rates and occasional line drops remain.

In addition to the benefits described above, there are others that the PACX will provide:

- Sharing of dial-up and hardwired facilities over more services. In particular, fewer modem banks will be required.
- Provide port and line monitoring capability. This will allow a precise utilization profile of services to be defined, which in turn will allow a more precise allocation of ports to services.
- Allow queuing of users requesting a busy service. This convenience will remove the aggravation of forcing a user to con-

continued...

THE GANDALF PACX continued

tinually dial into a busy service.

- Disconnect idle lines from ports. This will increase port utilization by quickly recycling idle ports.

Thus, PACX will provide considerable benefits. In the next issue of *COMPUTERNEWS*, a description of the procedure for accessing all of the interactive services through PACX and information on the types of communication links available to a user to interconnect with UTCS systems will be provided. Their relative quality, and modem and port requirements also will be discussed. For further information on current or proposed services, contact Walter Rosocha at 978-7087.

Walter Rosocha

UTCS ACCOUNT STATUS POLICY

UTCS has recently made several modifications to its policy concerning changes in Account Status. The following briefly summarizes the changes; for a complete explanation of terms, refer to the policy statement titled *CHANGE OF ACCOUNT STATUS - EXPLANATIONS.*

1. Accounts may no longer be closed by telephone. Accounts may still be locked or unlocked by phone if the account clerk is satisfied that the request comes from the account administrator.
2. The closing of an account now specifically gives UTCS permission to close dependent accounts and to delete dependent data.
3. Storage charges may now continue until month end on closed accounts unless the storage is deleted by the user prior to closing the account.
4. Terminology has been standardized.
5. System activities between accounting levels have been standardized. For example, unlocking a CAN results in uniform activity at the SAC level.

UTCS hopes that these changes will result in minimal inconvenience to our users. As a result of these changes there will be less room for error or misunderstanding.

The new policy goes into effect on February 1, 1980. **CHANGE OF ACCOUNT STATUS** forms are available from your Computing Services Representative or from the Accounting Office (a sample of this form appears at the end of the document entitled *CHANGE OF ACCOUNT STATUS - EXPLANATIONS).* If you have any questions regarding account status change, please contact your CSR or the UTCS Accounting Office.

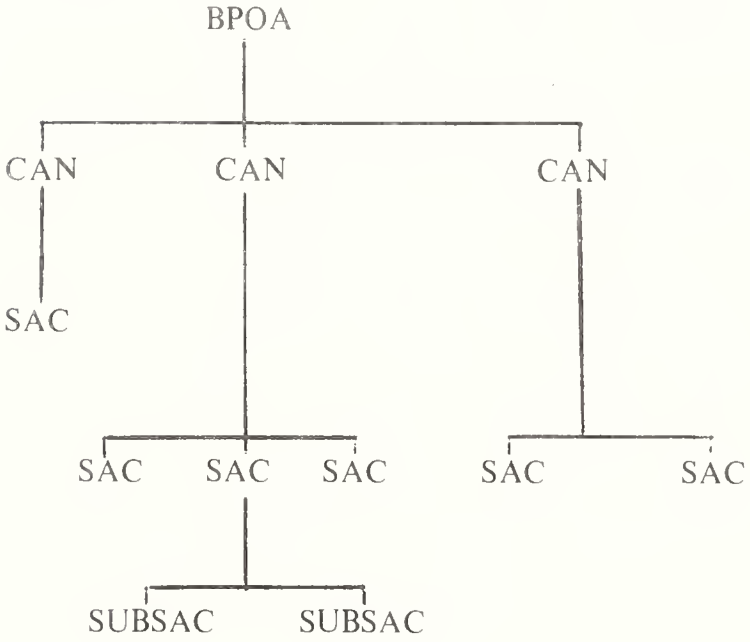
Don Gibson

CHANGE OF ACCOUNT STATUS - EXPLANATIONS

DEFINITION OF TERMS

Account- The use of the term account for purposes of this document refers collectively to all UTCS accounting entities. These include Blanket Purchase Order Accounts (BPOAs), Customer Account Numbers (CANs), Service Access Codes (SACs), and SUBSACs. The term SUBSAC refers to access mechanisms which are dependent upon SACs. Such items include TSO, WYLBUR, and $ACCT codes.

The following is a diagram which represents the hierarchical structure of accounts:



Administrator- The definition of the administrator of an account is best explained by example. A BPOA holder is the administrator of any CANs established under the BPOA. Likewise the CAN holder is the administrator for any SACs established under the CAN. It is possible for an account holder to be his own administrator; for instance, a person may hold both a CAN and a SAC, and in this case the person is the administrator of the SAC but not the CAN. Because of the hierarchical structure of the Accounting System, a request by an administrator at a higher level affects the entire structure of administrators and holders beneath him. For instance a change in status to a CAN will cause the same change in status to SACs dependent upon it, and in turn, SUBSACs dependent upon those SACs will have the same change applied to them.

Holder- An account holder is permitted to use the account as it is established for him by his administrator. This use may range from establishing other dependent accounts, to machine access, to data storage. The account holder may not alter the account of which he is the holder. He may alter any which he administers through the account as he is the administrator of those accounts.

Accessible-Inaccessible- The term "accessible" when applied to an account means that the account holder may use the account freely to obtain new service subject of course to any restriction placed on the account by the administrator of the account. Inaccessible means that the account still belongs to the account administrator but it cannot be used for new service by the account holder until it becomes accessible.

Billable- Billable means that an account is capable of receiving charges for service.

Lock- A request to LOCK an account

continued...

ACCOUNT STATUS continued

results in the account and all dependent accounts becoming inaccessible. Such accounts remain billable.

Unlock- A request to UNLOCK an account results in the account becoming accessible. Note that in most cases a request to UNLOCK from a higher administrator will UNLOCK an account LOCKED by a lower administrator.

Close- A request to CLOSE an account is equivalent to giving permission to destroy all dependent accounts and **all data storage** sponsored by those accounts. A CLOSED account no longer belongs to the administrator. It remains billable until the end of the month in which it was closed.

Changing the status of an account has the effect of applying the status change to all dependent accounts. Administrators should be aware that changes which are automatically set in motion do not occur concurrent to the change of status of the account. For instance, if a CAN is LOCKED its dependent SACs and SUBSACs will not be LOCKED until the next time UTCS accounting routines are run against the dependent accounts. In all cases these changes will take effect by the next **working** day at the latest. Because of the time lag required to apply changes in status to dependent accounts, administrators should specifically request the change in status of any account for which there is special concern.

It is critical to understand the implications of CLOSING an account, since once an account is CLOSED it no longer belongs to the administrator. CLOSING an account is equivalent to giving UTCS permission to destroy the account and any dependent accounts as well as any data storage owned by these accounts. Because of the seriousness of CLOSING an account, UTCS requires that all requests to CLOSE an account be submitted via a **CHANGE OF ACCOUNT STATUS** request form. The following three conditions occur when an account is CLOSED.

1. When a request is made for an account to be CLOSED, the request will have the effect of CLOSING all accounts dependent upon it. For instance, if a CAN is CLOSED the effect will be that all SACs sponsored by the CAN will be CLOSED and all SUBSACs associated with those SACs will be CLOSED. Data storage created by an account is subject to immediate deletion once the account is CLOSED.

2. UTCS does not guarantee that data files will be concurrently destroyed with the CLOSING of the account which created it. For this reason charges may result from data storage until the end of the month. In order to avoid such charges, deletion of storage should be performed by the account holder prior to CLOSING the account.

3. Any charges not posted prior to the CLOSING of an account may be applied to it after it is CLOSED.

CHANGE OF ACCOUNT STATUS

This form is to be used for only those accounts which are already assigned. Any requests other than CLOSE may be taken by phone. CLOSING an account requires an authorized signature. Changes of account status may only be made by the administrator of the account.

An explanation of terms and the effects of account status change is presented in the document *CHANGE OF ACCOUNT STATUS — EXPLANATIONS.* Please read this document prior to requesting your change. Complete the appropriate section and sign below.

☐ BPOA ________ SPONSORED BY PO ________
☐ LOCK
☐ UNLOCK
☐ CLOSE

☐ CAN ________ SPONSORED BY BPOA ________
☐ LOCK
☐ UNLOCK
☐ CLOSE

☐ SAC ________ SPONSORED BY CAN ________
SERVICE ________
☐ LOCK
☐ UNLOCK
☐ CLOSE

☐ SUBSAC ________ SPONSORED BY SAC ________
ACCESS TYPE ________
☐ LOCK
☐ UNLOCK
☐ CLOSE

I have read *CHANGE OF ACCOUNT STATUS — EXPLANATIONS* and agree to its terms.

____
DATE

____
TIME

____
EFFECTIVE DATE

____
NAME PRINTED

____
SIGNATURE

Dept ________
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ERINDALE RESEARCHER KEEPS IN TOUCH

When biology professor Nick Collins went on sabbatical in the fall, he wanted to keep in touch with the other members of his research group here at the University of Toronto. Professor Collins is working with the Lake Ecosystem Working Group (LEWG) and with members of the Biology departments at both Erindale College and the St. George Campus. The Group, which has been in existence for about two years, is involved with the classification of lakes in Ontario by functional types and the development of aquatic ecosystem models. Data was collected from dozens of lakes, reduced to machine readable form and is stored online on the IBM 3033 Processor. The data was analyzed using FORTRAN, SPSS and GENSTAT, with the LEWG members running their programs from TSO and WYLBUR. Professor Collin's work with LEWG involves benthic analysis (looking at things living in and on lake sediment). This analysis requires access to UTCS's computers as well as communication with the other members in the Group. Using the DEC-10 computer through the DATAPAC network, Dr. Collins can login to the computer and run his programs or send messages to other group members here in Toronto. The interesting aspect of this is that all of Dr. Collin's research work is being done from the University of Arizona, in Flagstaff, Arizona. Using an interactive terminal in a colleague's home in Flagstaff, Dr. Collins is able to "talk" with UTCS's computer here in Toronto. By dialing a **local** telephone number, Dr. Collins is able to avoid large long distance bills, one of the benefits of using the DATAPAC network.

The type of work in which Dr. Collins and his colleagues are involved is one example of the interesting and unique ways in which UTCS's systems and services are being used.

Paul Shindman

SPECIAL COLLOQUIUM

It may come as a surprise to many members of the U of T computing community that the second electronic computer ever sold was sold to the University of Toronto. This was one of the many interesting historical facts mentioned at the special colloquium held on November 20, 1979 in celebration of the 25th anniversary of the development of TRANSCODE, one of the first successful computer languages and compilers.

Professor J.N.P. Hume, physicist, a past associate of the U of T Institute for Computer Science (UTCS's predecessor), and Chairman of the Department of Computer Science, in short, "a living piece of Toronto's role in computing history", as introduced by Dr. Kelly Gotlieb - described the work that led to the development of TRANSCODE at the University of Toronto. Professor Hume dedicated his talk to the memory of his colleague, the late Professor Beatrice Worsley. Professor Hume described his work in building the TRANSCODE compiler for the FERUT computer which from 1952-1958 was located in the old Computer Research Facility (CRF) laboratory on the second floor of the Sandford Fleming Building. Several amusing anecdotes related to this project and to some of the works of other researchers were described.

People from all over the University of

continued...

SPECIAL COLLOQUIUM continued

Toronto campus attended the colloquium in recognition of Professor Hume's contribution in the area of Computer Science and of the work he has done for the University of Toronto. After the colloquium, Professor Hume, as Chairman of the Department of Computer Science, hosted a sherry party for those who attended.

Ian Darwin

/*JOBPARM STATEMENT

Users who have received the updated version of 3.3BATCH may wonder why the old faithful GPJS job card parameters aren't documented any more. The parameters for time, lines, and cards still do work, but will remain undocumented. The parameters which formerly were documented as following the Password have been incorporated on a new /*JOBPARM card, a JCL feature which was added to the system in the change from MVT to MVS in December, 1978. The old parameters were positional. The interpretation of the parameter varied depending upon the order in which it appeared on the card. Parameters were separated by commas and were either numeric or null. The new parameters are Keyword parameters of the form:

Keyword=value

and can appear anywhere on the card. Instead of typing:

```
// 1234,ABCD,,,,0018),MY.NAME
```

on the job card to indicate that the output should be printed on forms 0018, the user can type the following:

```
//  1234,ABCD),MY.NAME
/*JOBPARM FORMS=0018
```

which makes it quite clear that forms 0018 will be used for printing the job. If the user had **eliminated** a comma in the first example, he would have set a punched card limit of 18 cards for the job, while if he had **added** a comma he would have received 18 copies of his job.

With the first form, the user had to remember both the parameters and their position on the card; with the second form he has to remember less and is probably going to make fewer mistakes.

The new /*JOBPARM card may involve more typing but is much more comprehensible.

An old request of 2 minutes of CPU time, and 5 thousand lines of output previously was coded as:

```
//  1234,20,50),...
```

since time was measured in tenths of a minute and lines in hundreds. The new card format is:

```
// 1234,ABCD),...
/*JOBPARM T=2,L=5
```

since Time (T) is in minutes and Lines (L) are in thousands.

Full details on the new /*JOBPARM Statement are available in the new release of *USERBOOK* module 3.3BATCH dated 15Nov79.

Mark Tapia

NON-CREDIT SHORT COURSES AT UTCS

Computing Services will offer another selection of non-credit short courses beginning in February and continuing into March. These courses are aimed at introducing users to the various programs and services available to them.

The condition for registration in a course(s) is access to a valid UTCS Customer Account Number (CAN).

In order to register for courses, please contact the Information Office at 978-4990 or register in person at Room 206, Engineering Annex, 11 King's College Road.

Please note that registration for this series is limited. Should you be unable to obtain a space for the present series, a repeat series will be offered in the near future.

Introduction to the DEC-10

Prerequisite: None

Dates: Feb. 11, 12, 13 (lectures)
Time: 4 - 5 p.m.

Date: Feb. 14 (terminal session)
Time: 10 a.m. - 1 p.m.

This course is designed for all potential or new users of the DECsystem-10. The course will cover the material that all users should know in order to use the DECsystem-10 effectively. The material covered will include a description of the file system, how to use it, and some of the commonly used conventions, a description of what some of the basic operating system commands actually do, a complete review of the special character terminal commands and related terminal control features, and a discussion of a few of the widely used programs on the system: SOS, TECO, RUNOFF, PIP, MIC, DIRECT, LOGIN, LOGOUT, and IBMLST, the program used to send jobs to and retrieve jobs from the IBM machines. Additionally, the course will instruct participants on how to perform various special functions. Many users find that they would like to perform a particular operation (for example, adding or removing line numbers from a text file) but are unfamiliar with the commands involved. The course will provide this type of information. As well, it will provide a great deal of valuable information which at present is scattered widely throughout the system documentation. Note that in order to participate in the terminal demonstration, a DEC-10 PPN (SAC) will be required.

Introduction to UTCS Services

Date: Feb. 25

Time: 3 - 5 p.m.

Location: Galbraith Building,
Room 120

This new addition to our series is designed for both potential users and current users who would like an overview of all the services and programs provided at Computing Services. This presentation will deal with accounting access to facilities, general capabilities of various software packages and their appropriate applications. Note that this an open lecture and thus registration is not required.

Introduction to Computing

Prerequisite: None

Dates: Feb. 25, 26, 27, 28 and 29

Time: 4 - 5 p.m.

continued...

SHORT COURSES continued

This course provides the new user with some of the basic concepts of computing. This course is an overview of these concepts and of computer terminology rather than technical information on a given system or machine.

Introduction to Job Control Language (JCL)

Prerequisite: Some familiarity with batch processing.

Dates: March 3, 4, 5 and 6

Time: 12 - 1 p.m.

JCL is a set of control statements which are supplied to the operating system to provide necessary information for the initiation, processing and completion of a job. These statements inform the system of who the user is, what he/she wants done, the length of time the job will take, the space required, devices involved, etc. This course will describe the basic JCL statements and their applications.

Introduction to APL

Prerequisite: None

Dates: March 3, 4, 5, 6 and 7

Time: 4 - 5 p.m.

APL, A Programming Language, is an interactive system allowing statements to be transmitted using a computer terminal. APL may be used in administrative data processing, system design, mathematical and scientific computation and databases.

Numerical Packages at UTCS

Date: March 14

Time: 2 - 4 p.m.

This brief course will provide an overview of the mathematical packages supported by UTCS, including IMSL, and the simulation and optimization packages.

Introduction to SAS (Statistical Analysis System)

Prerequisite: Introduction to Computing or equivalent.

Dates: March 10, 11, 12 and 13

Time: 4 - 5 p.m.

This course will explore the capabilities of SAS, one of the most flexible of the statistical languages available at UTCS. SAS allows input of statistical data and pulls this data together without the use of punched cards, using a pseudo-PL/1 language. Specific features of SAS will be discussed in this course.

Introduction to WYLBUR

Prerequisite: Course on JCL or some familiarity with JCL.

Dates: March 17, 19 and 21

Time: 9:30 - 11 a.m.

WYLBUR is a computer system providing online, interactive, text editing facilities in addition to being a remote job entry system. Developed at Stanford, the English-like command structure of WYLBUR makes it easy to learn and use. WYLBUR has excellent recovery capabilities and provides fast response time. Note that participants interested in taking part in class demonstrations must have access to a S/370 SAC which has been enabled for WYLBUR.

continued...

SHORT COURSES continued

AT ERINDALE COLLEGE:

Introduction to WYLBUR

Eligibility: Limited to faculty members, staff members, research assistants and graduate students at Erindale College.

Dates: Feb. 18, 20 and 22

Time: 9:30 - 11:30 a.m.

Location: Erindale Computer Centre Terminal Room, Room 2039, Erindale College.

Refer to the description of WYLBUR provided above. Besides introducing participants to the basic capabilities and use of the WYLBUR language, this course will provide a description of the Job Control Language (JCL) statements needed to run programs and manipulate data. Please note that enrollment is limited to eight persons and the registration deadline for the course is February 11, 1980.

For further information regarding the Erindale WYLBUR course, contact the Erindale Computer Centre at 828-5311 or 828-5339.

Further courses:

UTCS will be offering future short courses on MARK IV and Interactive Graphics. Conditions and dates of these courses will be advertised in *COMPUTERNEWS*, *Hotnews*, and via signs which will be posted at the various remote terminals.

Dawne Smith

DECSYSTEM-10 NEWS

DEC-10 New User's Course

New and prospective users of the DECsystem-1090 will be pleased to learn that UTCS will be giving these users a chance to learn as painlessly as possible how to make effective use of the system. A short course designed expressly for neophyte users will be given on February 11-14.

The subject matter will consist of such topics as gaining access to the system, using a terminal effectively, making use of monitor commands, running system utility programs, creating and editing files and compiling, loading and executing user programs.

We anticipate that this course will be very popular. Anyone who might be interested in this course, but who might not have access to this article, would no doubt appreciate having it brought to his attention. For additional details concerning this course refer to the article in this month's issue entitled *NON-CREDIT SHORT COURSES AT UTCS*

DECUS Canada Symposium To Be Held In Toronto

The 1980 Symposium of the Digital Equipment Corporation User Society of Canada is scheduled to be held at the Toronto Harbour Castle Hilton Hotel on February 26-29. This year's conference is expected to be the largest ever, an expectation underscored by the preliminary program which shows as many as six sessions in progress simultaneously.

The major interest streams include Communications, Pascal and Languages, VAX/VMS, RSTS and RT-11, as well as LCG (Large Computer Group). Users with a particular interest in DEC-10 or DEC-20

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systems have a full slate of sessions to choose from. Many of the topics, of course, will be natural follow-ups to the DECUS meeting held in San Diego in December (described below).

The first day of the conference is dedicated to a number of specialized seminars. The two of interest to LCG users are "DECsystem-10 Performance and Security" and "DECsystem-20 Performance and Security".

A large number of short sessions make up the two and one-half days of the symposium proper. The following is a brief summary of the sessions which DEC's LCG customers will find interesting:

1. LCG Product Line Overview. DEC will describe the hardware and software products which they are presently offering and will be offering in the near future.
2. Field Service Issues. Developments in the area of remote diagnostics will highlight this session.
3. TOPS-10 Details. The important features in DEC's new 7-series operating system will be discussed.
4. TOPS-20 Details. The main topic of discussion will be the long awaited release of TOPS-20 version 4.
5. LCG Utilities and Languages. This session will be concerned with the status of DEC's major utility programs and language processors.

In addition, there will be contributed papers, panel discussions, workshops, etc. which will be interesting to managerial and technical people alike. Information about the Toronto DECUS Symposium can be obtained by writing to DECUS Canada, P.O. Box 11500, Ottawa, Ontario K2H 8K8. Note that a small supply of registration forms is available in the Information Office, Room 206 of the Engineering Annex.

Report on San Diego DECUS

The 1979 Fall DECUS Symposium was held in San Diego, California, on December 10-13. For the first time the DEC-10/20 and mini/midi schedules were integrated with the result that a number of sessions overlapped traditional product line boundaries. Several had audiences of rather mixed interests and backgrounds. This was particularly true of network, communications and language sessions.

The total attendance of about 3500 was close to double that of the previous conference held in San Diego two years before. It seems likely that the next DECUS Symposium (Chicago, April 22-25, 1980) will be yet another record breaker.

After four days and about twenty individual sessions, it became clear that Digital has been in the process of cleaning up projects which they have been working on for the last several years. Most of the information presented was much the same as had been available at Atlanta DECUS last June (see the report on that conference in the July, 1979 issue of *COMPUTERNEWS)*. An updated release date for some software product or an additional detail or two about the product's features are examples of the only new information made available. As a result, this report will confine itself to summarizing the main features of some of the products which will become available in the next several months.

Operating System Developments

DEC's new Symmetric Multi-Processing (SMP) monitor (known as 7.00) is now being distributed to DECsystem-1099 dual processor installations. 7.01, the version of that operating system intended for single processor installations such as the UTCS 1090 system, is expected to be distributed by about July. UTCS will probably convert to 7.01 soon after it becomes available.

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DECSYSTEM-10 NEWS continued

The 7-series monitor incorporates a number of performance enhancements. Foremost among these is a rewrite of SCNSER, the module which controls user terminal input and output. Disk I/O is also improved and several scheduler bottlenecks have been removed.

The 7.01 monitor also includes a lot of new functionality which users will find attractive. The following is a summary of the most important new features:

1. canonical terminal support
2. special video terminal support, such as having control-H (backspace) erase the character on the screen, control-W (backspace word) erase backwards to the previous non-alphanumeric character, control-U erase the line back to the prompt
3. a FILES argument for the SET WATCH command to allow users to monitor their program's use of the file system
4. a PAGE SIZE command which will allow the user to get an automatic control-S after n lines of output
5. SAVE, GET and RUN commands which work when an explicit SFD is specified
6. vastly increased space for TMPCOR files
7. users will be able to define new logical names as arbitrary strings of file structures, UFDs and SFDs
8. up to 80 software I/O channels for programs using FILOP. monitor calls
9. a QUEUE. monitor call for program level interfacing with queueing functions
10. support for GALAXY release 4, including ORION (a new operator interface) and IBMSPL (a new IBM link spooler to replace D60SPL)
11. several file daemon enhancements
12. a HASP multileaving emulator for the IBM link
13. support for the PULSAR tape labeling facility

User Software

There will be maintenance releases for many of DEC's utility programs during the coming six to eight months. They will be distributed in two batches. The first will occur sometime in February and will include new versions of FILDAE, HELP, LINK, MACRO, SCDSET, SETSRC and UUOSYM. The second package will be timed to follow shortly after 7.01. The main programs included will be DAEMON, DDT, INITIA and LOGIN.

Release 4 of the GALAXY batch and spooling system will also be distributed in mid-1980, sometime after 7.01. It will include several new modules such as ORION (a new operator interface) and MDA (the Multiple Device Allocator). There will also be new QUEUE and BATCH switches, including /NOTIFY to inform the user when the job is finished and /BATLOG (with arguments like append, supersede or spool) to control the disposition of the log file.

Several new versions of languages are due to be distributed during 1980. As our users are already aware, UTCS recently installed version 2 of APLSF. This release is primarily a maintenance release, but it also includes a few new features, such as increased workspace size, support for the workspace interchange standard and some new functionality.

There were rumours that DEC might soon

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DECSYSTEM-10 NEWS continued

announce that BLISS-36 will become an officially supported language. This will please current DEC-10 BLISS users because the compiler now on the system is supported by DEC only to the extent necessary to compile other DEC products (such as FORTRAN-10) which are written in the BLISS-10 language.

COBOL version 12A will be available within the next couple of months. This maintenance release contains mainly bug fixes plus improvements in I/O performance and the quality of the generated code.

Version 6 of FORTRAN is about to go into field test and should become generally available sometime during the summer. It will include a new mathematics library which stresses greater accuracy than the present one, several new OPEN options (such as an expanded ERR= construction and a file disposition capability), partial support for the new FORTRAN-77 standard and improved error handling capabilities.

As mentioned above, versions 53A and 4A, respectively, of the MACRO/LINK combination will be available in February. These will include some new features and, for LINK, a significant speed improvement for small programs. Additional performance improvements can be expected for MACRO (54) and LINK (5) which are expected to be distributed sometime before July.

The DEC-10 DECUS Menu

The traditional final session at a DECUS conference is devoted to preparing a 'menu'. This is an ordered list of items (a 'wish list', if you will) which DEC's customers believe to be important issues. Menu items collected during many of the earlier sessions are presented and voted on by each installation. The intention is that DEC will respond to the top several items on the DEC-10 and DEC-20 menus at the next DECUS symposium.

It may be interesting to the reader to learn what the majority of DEC-10 installations believe are the major outstanding issues. The top seven items on the menu are:

1. FORTRAN development, including a smooth transition to FORTRAN version 6 (which incorporates FORTRAN-77 features) and the ability to read COBOL files
2. DECnet network capability under TOPS-10 including a file transfer capability
3. PUSH/POP commands to allow users to enter an alternate context state in the middle of their session. For example, the user could stop a program during execution, do a PUSH to save the job's state, perform some unrelated activity and then do a POP and continue the first program
4. distribute maintenance releases more often
5. provide a convenient, easy-to-use source maintenance tool
6. improve throughput for buffered mode I/O
7. provide users with the tools to carry out their own performance analysis

These are the features DEC-10 users might expect to see over the next one to two years.

In summary, the conference was valuable, not because of the few new details announced about the software, but because much of that software is now in the process of actually being released. Also interesting were the items which placed high on the menu. It is likely that they provide some insight into the future of DEC-10 development.

Edmund West

FILEBOL - THE MVS REPLACEMENT FOR UTSELECT

UTCS recently obtained a replacement for the obsolete UTSELECT utility, that is, the FILEBOL utility. UTSELECT is the general purpose data manipulation utility which was obtained from the University of Chicago and proved to be quite popular in an MVT environment. However, because it was designed under MVT, UTSELECT is highly unreliable in an MVS environment. FILEBOL, also a general purpose, record-oriented utility obtained from the University of Chicago, was developed under MVS. FILEBOL will list, copy, edit, sample, screen and update files, and generate reports. The FILEBOL language is used to manipulate the data.

As the FILEBOL program is a replacement for UTSELECT, the UTSELECT procedure will be disabled sometime in the near future and thus should not be used.

A brief introduction to the program is contained in the *USERBOOK* module 3.4FILEBOL which is currently available in the Information Office. For more detailed information the user is pointed to the online documentation where a complete copy of the user's guide is available. To obtain a copy of the FILEBOL manual, code the following.

```
// EXEC FILEDOC
```

Note that the user should allow for 6600 lines of output in his job.

In addition to the FILEBOL Manual, a short 'hot news' item will print out. This 'hot news' section describes the current problems with or changes being made to the FILEBOL program. To obtain just the 'hot news' section, run the following GPJS job:

```
// EXEC FILEHOT
```

Users should allow for 1000 lines of output.

TSO users can obtain a copy of this 'hot news' information by using the following TSO command.

```
NL 'APPL.FILEBOL.UTCS.LIBRARY'
```

Herb Kugel

MARK IV RELEASE 8 IS COMING

MARK IV users at UTCS will be pleased to note that Release 8 of MARK IV will be installed on March 15th, 1980. Release 8 is upward-compatible with UTCS's current production system (Release 6 on the IBM 3033, Release 7 on the IBM 3031) and contains some powerful new features, including array processing (as a new special feature purchased by U of T) and facilities to recover MARK IV source statements from a MARK IV library.

Since the new release is upward-compatible, users of the current system should notice no harmful effects with the new version. However, the new facilities, such as array processing, provide MARK IV with a new flexibility which allows many requests to be dramatically simplified. Indeed, array processing is a feature which has been much requested of the MARK IV distributor for

continued...

MARK IV RELEASE 8 IS COMING continued

many years.

Documentation for MARK IV Release 8 can be ordered through the UTCS Information Office. Array processing is a new special feature and hence documentation for it can be ordered separately, as a self-contained manual. Those users who have Release 7 documentation may order update pages; users with Release 6 or older documentation may wish to get a new reference manual. In addition, users wishing further information on new facilities provided by Release 8 may examine copies of the *MARK IV Technical Information Bulletin (TIB) for Release 7 and 8,* available at the Information Office.

Users who would like to obtain more information about MARK IV are directed to the UTCS CSRs.

John Bradley

ERRATUM

Newsletter subscribers should note the following correction to the article entitled *ACM SIGUCC CONFERENCE* which appeared in the December issue of *COMPUTERNEWS.*

The "Cost Center Concept" introduced at this session involves allocating costs and associating cost with service. In allocating costs, all elements must be considered. The most common of these are software packages, documentation, salaries, terminals and supplies, marketing and professional development costs. Some expense elements may be recovered through direct charging such as software surcharges and documentation sales. Or services may be charged for on a percentage of cost basis. These methods do, however, require that universities go to a hard or real dollar scheme of charging.

We apologize for any confusion this error may have caused.

Janet Barr

PERSONNEL CHANGES

There are not very many changes in personnel at the start of this new year.

As of December 31, Carl Stacy of Communications and Small Systems, Regina Milligan of Administrative Computing Services, and Leslie Fullerton of Academic Computing Services are leaving UTCS. Alistar McKeating, also of Administrative Computing Services and Ivan Prock, from Operations, are leaving this month. We wish each of you all the best in the future.

Welcome two new Programmers to UTCS - Steven Younker starting January 3 in Administrative Computing Services, and Ronald Benn coming to us from IBM Canada Laboratories, now working in Communications and Small Systems.

Theresa Veira

UTCS SYSTEMS

3033 PROCESSOR

- located in Mclennan Physical Laboratories
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR
- 6 megabytes of memory
- MVS with JES2

SYSTEM/370 MODEL 165-II

- located in McLennan Physical Laboratories
- provides APL and ATS services
- 4 megabytes of memory
- OS/MVT with APL and ATS

3031 PROCESSOR

- located in McLennan Physical Laboratories
- provides administrative IMS/VS DB/DC Batch and TSO services
- 6 megabytes of memory
- MVS with JES2

DECSYSTEM-10 Model 1090

- located in Sandford Fleming
- provides General Purpose Time-Sharing
- 256 K - 36 bit words of memory
- TOPS-10 operating system

COMMUNICATIONS & SMALL SYSTEMS (CSS)

- located in SF106
- DEC GT44 System with PDP-11/40 CPU
- 2 Z80 based microcomputers
- DEC GT40 System with PDP-11/05 CPU
- provides specialized graphics and inter- active graphics
- provides on-line and real-time computing services, data acquisition and minicomputer services

UTCS DIRECTORY

POSITION	ROOM	CENTREX PHONE NUMBER
Director		
Dr. Doron Cohen	MP350	8948
Associate Directors		
Rein Mikkor	MP350	5058
Al Heyworth	MP350	4936
Faculty Liaison Officer		
Dr. Frank Spitzer	MP350	4619
Manager, Communications & Small Systems		
Eugene Siciunas	MP350	4967
Manager, Operations		
Derry Cox	MP350	7092
Manager, Systems		
Ward Beattie	MP350	3579
Manager, Academic Computing Services		
Ralph Lombardi	MP350	7130
Manager, Administrative Computing Services		
Walter Berndl	MP350	7331
Manager, Services Support		
Don Gibson	MP350	5568
Administrative Officer		
Suzan Fawcett	MP350	4428
Information & Accounting Office		
General Inquiries	EA206	4990
Accounts		
Merton Hunte (U of T)	EA206	8702
Sylvia May (External)	EA206	7148
Supervisor, Accounting & Information Services		
Marg Doherty	EA209	3960
Access Codes		
Agatha Stevens	EA206	8703
Programming Services		
Bill Lauriston	SG201	6877

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UTCS DIRECTORY continued

Entry Services

Supervisor		
Vera Cabanus	MP368	5040
Text Entry		
Dale Wright	MP368	4565
Data Entry		
Zelda Anderson	HU405	5273
Keypunching		
Dale Wright	MP368	4565

Supervisor, Applications

Herb Kugel	SG304	7286

Computing Services Representatives

Engineering Annex Terminal		
Sue Chong	EA201	4357
Program Advisors	EA103	
Time-Sharing Support		
TS Advisors	SG204	6465
Mark Tapia	SG204	7109
Erindale		
Paul Shindman		828-5311
Scarborough		
Bob Blackburn		284-3173
Arts and Science		
	SS2133	6509
New Physics		
Bob Chambers	MP1202	8823
External		
Ihor Prociuk	SG205	6875,6885

Supervisors, Operations

Paul Scarborough (IBM 3033-IBM 165)	MP335	6220
Krishna Patnaik (DEC-1090 & CSS)	SF106	4086
Dave Wong (IBM 3031)	MP335	6846

Key:

EA = Engineering Annex
SG = 49 St. George
HU = 215 Huron St.
MP = McLennan Physical Laboratories (New Physics)
SF = Sandford Fleming
SS = Sidney Smith

Job and System Status Queries

SYSTEM/3033,TSO	7373
ATS/APL	6234
2741 TERMINAL MALFUNCTIONS	7107

Time-Sharing

Services	Dial-Up
APL,ATS	7200 Centrex 7201 Non Centrex
TSO,WYLBUR	6200 Centrex 6201 Non Centrex
DEC-10 Services	4224 Centrex 4244 Non Centrex
PHONE-IN ADVISING	6465

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